REMARKS

The Office Action maintained a rejection over the combination of *Betsui et al.* (U.S. Patent No. 5,938,494) with *Inoue et al.* (U.S. Patent No. 6,236,159) in rejecting Claims 1, 5, 9, 13 and 41-47. The Office Action specifically noted that *Betsui et al.* utilized low melting glasses for sealing the periphery of a substrate, and that the process required the removal of a temporary protecting film by, in essence, etching it with a gas during an electric discharge. (See Column 3, Lines 31-37.)

The Examiner further relied upon the *Inoue et al.* reference to purportedly address a lack of teaching in *Betsui et al.* of a specific exhaust step set forth, for example, in our independent Claim 1.

In this regard, our claimed envelope forming step is followed by providing a sealant along the edges of the first and second plates and an exhaust step for exhausting gas from the envelope to a lower pressure whereby ambient pressure would assist in the sealing. The exhaust step further has substeps of utilizing cleaning gas to remove impurities and then re-evacuating the envelope before subsequently a filling step of discharged gas is introduced. Needless to say, our pending dependent claims add other distinguishing features.

The *Betsui et al.* reference addressed a specific problem existing with a protective film by avoiding a heating of the panel to a large temperature necessary to denaturalize any reactants of moisture or carbon oxide with a protective film. Thus, a temporary protective film was utilized to prevent any denaturalizing layer from being formed. The use of the temporary protective film eliminates any requirement of the heating step of 350°C.

Betsui et al. teaches basically the formation of the envelope step at a relatively low temperature, and particularly, an etching procedure before any gas inside the panel is removed,

then subsequently the discharge gas is introduced. The Office Action doesn't address this teaching of a low temperature protective film formation and subsequent etching, nor does it disclose how disclosure would teach the method steps set forth in our presently pending claims.

The Office Action misappropriately defined applicant's position as only contending that the *Inoue et al.* reference did not teach an envelope filled with a cleaning gas after being evacuated and then re-evacuating it in an exhaust step.

Since the Examiner quoted Column, Line 66, through Column 7, Line 9, of *Inoue et al.*, it is believed that the Office Action interpreted this cited description "evacuated from at least one or the vent holes," as a cleaning gas would be introduced through only one vent hole. This, however, takes the total teaching of the cited portion of the *Inoue et al.* reference out of context since the release of the impurity gas is described as being achieved ". . . for example, by heating the panel or by causing electric discharge between discharge electrodes or between the cleaning electrodes while introducing the gas into the panel," thus suggesting a constant flow of gas to remove impurities.

In addition, on Column 7, Lines 10-19, and Column 7, Lines 20-24, *Inoue et al.* teaches, "The impurity gases remaining in the inter-rib spaces within the panel are forcibly expelled from the second vent hole by introducing the discharge gas or the cleaning gas . . . into the panel from the first vent hole."

In view of these descriptions, it would appear that the teaching to a person of ordinary skill in this art is that the exhaust step of *Inoue et al.* occurs when gases are introduced and exhausted from the envelope at the same time. This type of exhaust step is not as set forth in Claim 1 wherein the envelope is filled with a cleaning gas as specifically defined in the substeps of our exhaust step after the panel is evacuated and then is re-evacuated in the exhaust step.

It is respectfully submitted the *Inoue et al.* disclosure suggests that at least one or the vent holes in *Inoue et al.* are used only for gas exhaustion, and that a hole for introducing a gas is formed separately from the vent hole.

As can be expected, the method in the *Inoue et al.* reference relied upon requires the panel to have two holes for introducing and exhausting the gases, and presumably a greater amount of cleaning gas would be consumed because the cleaning gas flows through the panel. The method set forth in our Claim 1 can be accomplished with only one hole for both introducing and exhausting the gases, since as set forth in our exhaust step, we have a substep for evacuating the envelope, another substep for filling the evacuated envelope with a cleaning gas, and then another substep for re-evacuating the envelope. Subsequently we have a filling step for filling the envelope with a discharge gas.

As already noted, the *Betsui et al.* reference requires a discharge gas at a low temperature in order to etch a temporary protective film. *Inoue et al.* certainly does not recognize any advantages in a protective film, but it does recognize a relatively low temperature approach. The *Inoue et al.* reference discloses that a pair of vent holes can be arranged at various locations in order to insure a directional flow of cleaning gas. *Inoue et al.* further teaches removing impurity gases during a heating or electric discharge by introducing a discharge gas or a cleaning gas into the panel.

Inoue et al. does not suggest an evacuation of the envelope with the subsequent filling of the envelope with a cleaning gas and then a re-evacuation envelope before a discharge gas is charged into a final panel. As mentioned in an earlier response, *Inoue et al.* taught a low temperature removal of impurity gases by introducing the cleaning gas in the panel from a first

vent hole while removing a cleaning gas presumably with any elements of impurity gas from another vent hole.

Dependent Claims 3, 7, 11, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35 and 39 were further rejected over a combination of the *Betsui et al.* reference in view of *Inoue et al.* when further combined with *Park et al.* (U.S. Patent No. 6,332,821). The Office Action acknowledged that the *Inoue et al.* reference failed to teach a pressure in the envelope being set at a lower pressure than that outside the envelope. Although the Office Action admits this feature, it does not explain how the *Inoue et al.* reference then would serve as a teaching for a combination with only the *Betsui et al.* reference in rejecting Claim 1, which specifically defines in the exhaust step, a step for evacuating the envelope, filling it with a cleaning gas, and then re-evacuating the envelope.

The Office Action relied upon the *Park et al.* reference to teach the exhaustion of the air, but as clearly noted in the cited teaching of Column 5, Lines 4-10, the exhaustion of air is within the total heating chamber so that there is not any differential in pressure within the envelope relative to the outside of the envelope. Thus, applicant respectfully submits that there is no teaching in the *Park et al.* reference as relied upon in the formation of the present final rejection to create a differential pressure between the heating chamber that surrounds the envelope and the internal pressure within the envelope. Both are simultaneously evacuating and heated at the same time to melt the frit glass at a temperature above 400°C which, needless to say, is higher than any temperature that a person of ordinary skill in the art would utilize within the *Betsui et al.* reference. Additionally, within the same cited teaching, at Column 5, Lines 18-19, the substrates are bonded by "the pressure of the clips" as opposed to a differential pressure that can be achieved by the method steps set forth in our present claims.

In summary, the Office Action erroneously contended that our argument only addressed the lack of teaching the *Inoue et al.* reference associated with the evacuation and introduction of cleaning gases in our exhaust step, and more particularly in our substeps. While *Inoue et al.* is deficient in suggesting our particular procedure, it is clear, however, that our arguments directly addressed the lack of a teaching reference that would justify the aggregation of these diverse references to hypothetically render obvious our present claims.

The final Office Action never addressed a lack of a teaching reference that is required to justify the hypothetical combination, nor does it reconcile the inconsistencies between the cited references. For example, it is clear that the *Betsui et al.* reference cannot be used to teach a differential pressure since it is evacuating the entire oven. Thus, the features in the claims including an exhaustion to assist in the sealing steps with lower pressures are lacking from the references applied of record.

It is respectfully requested that the above comments be considered and that an early notice of allowance be indicated on the pending claims.

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If the Examiner believes that a telephone interview will help further the prosecution of this case, rather than requiring applicant to file an appeal, the undersigned would appreciate a telephone conference.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 16, 2004.

By: Rachel Carter

Rachel Carter

Signature

Dated: January 16, 2004

Very truly yours,

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